Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of:	)	ET Docket No. 92-28
MOTOROLA SATELLITE COMMUNICATIONS, INC.	)	PP-32
CONSTELLATION COMMUNICATIONS, INC.	)	PP-29
TRW, INC.	)	PP-33
ELLIPSAT CORPORATION	)	PP-30
LORAL QUALCOMM SATELLITE SERVICES, INC.	)	PP-31
CELSAT, INC.	)	PP-28
Requests for Pioneer's Preferences with Regard to Proposals to Establish Satellite Systems in the 1610-1626.5 MHz and 2483.5-2500 MHz Bands.	)	

To: Office of Engineering and Technology

REPLY COMMENTS

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SUMMARY

Motorola Satellite Communications, Inc. ("Motorola") urges the Commission to grant it a pioneer's preference for the technological and service innovations associated with the IRIDIUM™ satellite system. Under any reasonable interpretation of the Commission's rules, Motorola is entitled to such a preference.

Motorola has developed the IRIDIUM™ system over a number of years, and clearly well before any other entity seriously considered using a constellation of low Earth orbiting ("LEO") satellites to provide ubiquitous personal mobile voice communications services. The IRIDIUM system will offer a broader group of customers an added functionality, use the RDSS spectrum differently and far more efficiently, result in a change in the operating and technical characteristics of mobile satellite and radiodetermination services, and significantly enhance the quality and speed of information transfer.

The particular innovations associated with the IRIDIUM™ system include:

(1) The first to propose personal mobile voice communications for anyone, anywhere, anytime using earth terminals that are small, lightweight, pocket-sized, battery-operated, and have low-profile antennas;

(2) The coverage of the Earth with cells coupled with beam hopping/TDMA which provides for a high degree of frequency reuse;

(3) Distributed processing systems in orbit using intersatellite links. Each IRIDIUM™ satellite demodulates the signals, converts them to

baseband, employs onboard processing, and routes efficiently;

(4) Soft, troublefree cell and satellite-to-satellite handoffs, and the method for predicting such handoffs;

(5) Bidirectional operation in the service bands using TDMA/FDMA modulation techniques;

(6) Multiple spot beam deployable space antenna systems;

(7) A power management system whereby overlapping cells are turned off as satellites approach the polar regions; and

(8) Devices for narrow band Doppler compensation which conserve power and can be used with handheld communications units.

Many of these innovations are the subject of issued or pending patents, both in the United States and abroad. Through its experiments and otherwise, Motorola has also demonstrated the feasibility and viabliity of the IRIDIUM™ system.

The Commission can award Motorola a nationwide preference without violating the hearing rights of any of the other pending applicants proposing use of the RDSS bands. Motorola has not requested a nationwide monopoly. The IRIDIUM™ system application only requests 10.5 MHz of the available 33 MHz of RDSS spectrum currently available for licensing. One or more of the other applicants could be accommodated in the remaining two-thirds of the RDSS bands. In addition, other spectrum may become available as a result of WARC-92 within which these other proposed systems could operate.

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REPLY COMMENTS

Motorola Satellite Communications, Inc. ("Motorola") hereby files its consolidated reply comments to the comments submitted to the above-captioned requests for pioneer's preferences.[1/] Motorola once again urges the Commission to grant

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1/ By Public Notice, Mimeo No. 22153 (Mar. 9, 1992), the Chief Engineer accepted for comment and consolidated the requests for pioneer's preference filed by Motorola, Constellation Communications, Inc. ("Constellation"), TRW, Inc. ("TRW"), Loral Qualcomm Satellite Services, Inc. ("LQSS"), and Ellipsat Corporation ("Ellipsat"), establishing April 23, 1992, as the date for filing reply comments by interested parties. In an Order Denying an Extension of Time for Comments and Replies, DA

(continued...)

it a pioneer's preference for the technological innovations and new and enhanced service offerings associated with its IRIDIUM™ satellite system. The Commission can best "foster the development of new services" by granting Motorola's request as quickly as possible.[2/] In this regard, the public interest would be served by "reducing for innovators [like Motorola] the delays and risks associated with the Commission's allocation and licensing processes."[3/] None of the other applicants would lose any hearing rights by favorable Commission action on Motorola's pioneer's preference request.

The commenters who have opposed Motorola's request for a pioneer's preference mischaracterize the nature of Motorola's proposal and fail to take into account the substantial evidence which supports the award of a preference for its IRIDIUM™ system. Motorola again reiterates that it is not asking for a nationwide monopoly despite the other applicants' protestations to the contrary. The IRIDIUM™ system application only requests 10.5 MHz of the 33 MHz of RDSS spectrum to operate in the United States.

1/ (...continued)
92-326 (Mar. 27, 1992), the Office of Engineering and Technology denied a request by LQSS to extend for a period of one month the time for filing comments in this proceeding. The Chief Engineer has also issued a Public Notice, Mimeo No. 22205 (Mar. 11, 1992), announcing April 10, 1992, as the final day for the filing of additional pioneer's preference requests related to this docket. On that date, Motorola filed a supplement to its pending pioneer's preference request. See Supplement to Request for Pioneer's Preference (April 10, 1992) ("Motorola's Supplement").

2/ See Establishment of Procedures to Provide a Preference to Applicants Proposing an Allocation for New Services, Notice of Proposed Rulemaking, 5 FCC Rcd. 2766 (1990).

3/ Id.

One or more of the other applicants could operate in the remaining two-thirds of the RDSS bands and possibly other spectrum as well. Accordingly, it simply is incorrect to assert that a grant of Motorola's pioneer's preference request would result in the denial of all of the other pending applications in the RDSS bands.

Motorola has presented substantial information and material in this proceeding and in the associated RDSS licensing proceeding to support its request for a pioneer's preference. Numerous technological and service innovations are associated with the IRIDIUM™ system, and Motorola, without question, is the pioneer in the development and implementation of these technologies and services. No other applicant or party can claim credit for being the first to propose seriously ubiquitous personal handheld voice communications services by means of a constellation of low-Earth orbiting ("LEO") satellites.

I. MOTOROLA'S REQUEST FOR A PREFERENCE IS NOT TANTAMOUNT TO A NATIONWIDE MONOPOLY

The "Gang of Four" (Ellipsat, Constellation, TRW and LQSS) repeatedly overstate the nature and extent of the pioneer's preference requested by Motorola for its IRIDIUM™ system. Due to the inherent nature of satellite-based RDSS and MSS, Motorola (as well as all of the other LEO applicants) has requested a nationwide pioneer's preference. The Commission specifically contemplated that, under the right set of circumstances, such a

nationwide preference would be warranted.[4/] Indeed, in its only preliminary determination to date, the Commission has tentatively awarded a nationwide preference to the Volunteers In Technical Assistance ("VITA") for its LEO data communications system below 1 GHz.[5/]

A nationwide preference award to Motorola, however, is not tantamount to a nationwide monopoly or a single provider service for all RDSS and MSS. Motorola has never sought a service monopoly for its IRIDIUM™ system, but only has requested a limited amount of L-band spectrum within which to operate its proposed system. In order to make the most efficient utilization of the available frequency spectrum, Motorola developed its bidirectional FDMA/TDMA transmission plan, which is highly spectrum efficient. The IRIDIUM™ system contemplates initial operations in only 10.5 MHz of the RDSS bands, leaving over two-thirds of the remaining RDSS spectrum for the other applicants. Motorola estimates that at least one or two of the pending LEO system proposals could operate in the portion of the RDSS bands that Motorola will not use.[6/] Thus, it simply is incorrect to

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[4/] See Establishment of Procedures to Provide a Preference to Applicants Proposing an Allocation for New Services, 6 FCC Rcd. 3488, 3495 (1991) ("Pioneer's Preference Order") on reconsideration 7 FCC Rcd. 1808 (1992) ("Pioneer's Preference Reconsideration Order").

[5/] See Request for Pioneer's Preference in Proceeding to Allocate Spectrum for Fixed and Mobile Satellite Services for Low-Earth Orbit Satellites, 7 FCC Rcd. 1625 (1992) ("VITA Tentative Decision").

[6/] In this connection, the Gang of Four repeatedly has asserted in their filings and at the recently concluded World Administrative Radio Conference ("WARC-92") that their proposed

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assert, as the Gang of Four has, that the IRIDIUM™ system cannot share spectrum and that, therefore, the award of a pioneer's preference to Motorola would foreclose all of the other pending RDSS applicants from being able to offer competing services.

Moreover, other MSS satellite systems operating in different portions of the frequency spectrum would provide competition to the IRIDIUM™ system. These include American Mobile Subsidiary Corporation's ("AMSC") licensed domestic MSS system in the upper L-band, INMARSAT and the soon-to-be-licensed LEO data communications systems operating below 1 GHz. AMSC also has identified other services which will compete with MSS and RDSS. Thus, Motorola would face substantial competition from other satellite service providers.[7/]

Accordingly, the Commission can grant Motorola a preference and promote technological and service innovations while continuing to encourage diversity and competition for communications services.[8/]

[6/] (...continued)
systems could share the lower portion of the RDSS uplink band with Radio Astronomy and the Russian GLONASS system by meeting the criteria set forth in new ITU Footnote 731X. See Addendum and Corrigendum to the Final Acts of the World Administrative Radio Conference (WARC-92), at 10-11, International Telecommunications Union, Malaga-Torremolinos (1992) ("WARC-92 Final Acts").

[7/] See Pioneer's Preference Reconsideration Order, 7 FCC Rcd. at 1809.

[8/] See Pioneer's Preference Order, 6 FCC Rcd. at 3495; Pioneer's Preference Reconsideration Order, 7 FCC Rcd. at 1812.

II. NONE OF THE OTHER RDSS APPLICANTS WILL LOSE ANY PROTECTED HEARING RIGHTS IF MOTOROLA WERE GRANTED A PIONEER'S PREFERENCE

Contrary to the unsupported assertions of the other RDSS applicants, the award of a pioneer's preference to Motorola will not deny any hearing rights which might be associated with their pending applications. Neither the Communications Act of 1934, as amended, nor Ashbacker[9/] requires that the Commission hold a comparative hearing whenever it is confronted with a group of potentially mutually exclusive applications. The courts long ago held that the Commission has the authority to establish eligibility requirements by rule, both before and after applications have been filed, which have the effect of eliminating or reducing the number of applicants.

TRW's and LQSS's novel assertion that the Commission cannot promulgate rules of eligibility once applications have been accepted for filing without violating an applicant's statutorily guaranteed hearing rights is contrary to a long line of Court and Commission precedent. The Commission has repeatedly established threshold eligibility requirements after applications have been accepted for filing. Thus, in 1985 the Commission promulgated financial qualifications and new transponder loading requirements during the pendency of a domestic fixed satellite services proceeding, and then applied those new rules to the

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9/ Ashbacker Radio Corp. v. FCC, 326 U.S. 327 (1945).

group of 21 applicants then before it.[10/] This procedure was later affirmed on appeal by the Court of Appeals for the D.C. Circuit.[11/]

Furthermore, on numerous occasions, including the original RDSS proceedings, the Commission has simultaneously processed applications and adopted new rules which directly impacted the pending applications.[12/] Most recently, in its upper L-band proceedings, the Commission affirmed the award of a domestic MSS license to AMSC and dismissed several applications based upon the results of just such a post-application rulemaking proceeding.[13/]

[10/] See Licensing Space Stations in the Domestic Fixed-Satellite Service, 101 F.C.C.2d 223 (1985), reconsideration denied 1 FCC Rcd. 682 (1986).

[11/] See Columbia Communications Corp. v. F.C.C., 832 F.2d 189 (D.C. Cir. 1987); see also United States v. Storer, 351 U.S. 192 (1956) (Where the Commission amended its multiple ownership rules after the acceptance of a broadcast application and then dismissed that application based upon that threshold eligibility requirement); Hispanic Information & Telecommunications Network, Inc. v. FCC, 865 F.2d 1289, 1294-95 (1989) ("The filing of an application creates no vested right to a hearing; if the substantive standards change so that the applicant is no longer qualified, the application may be dismissed.")

[12/] See Amendment to the Commission's Rules to Allocate Spectrum for, and to Establish Rules and Policies Pertaining to, a Radiodetermination Satellite Service, 104 F.C.C.2d 650 (1986) ("RDSS Licensing Order"); Amendment of Parts 2, 22, and 25 of the Commission's Rules to Allocate Spectrum for and to Establish Other Rules and Policies Pertaining to the Mobile Satellite Service for the Provision of Various Common Carrier Services, 4 FCC Rcd. 6041 (1989); Domestic Communications Satellite Facilities, 22 F.C.C.2d 86 (1970), 35 F.C.C.2d 844 (1972), recon. in part 38 F.C.C.2d 665 (1972).

[13/] See Final Decision on Remand, GEN Docket No. 84-1234, 7 FCC Rcd. 266, 268-69 (1992).

In any event, as indicated above, the Gang of Four is incorrect in asserting that all of their applications would effectively be denied if Motorola were granted a preference for its innovative technologies and proposed service offerings.[14/] Even after such a preference is granted to Motorola, one or more of the Gang of Four still could receive a license to operate in the remaining portions of the RDSS bands or in other bands newly allocated at WARC-92. Of course, the Commission still would have to determine how many of the other applicants were qualified to hold an RDSS/MSS license and whether all of them could be accommodated in the remaining spectrum.

III. THE CURRENT RDSS LICENSING RULES ARE NOT AN IMPEDIMENT TO THE AWARD OF A PIONEER'S PREFERENCE TO MOTOROLA

In the event the RDSS rules need to be changed to accommodate Motorola's proposal, that does not mean that Motorola cannot be given a pioneer's preference. The Commission's pioneer's preference policies and rules specifically contemplate changes in licensing and technical rules brought about by new and innovative technologies and services. For example, the Commission will award a preference to an applicant provided the

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[14/] TRW also incorrectly asserts that all of the pioneer's preference requests in this proceeding were filed subsequent to the submission of the pending RDSS applications. In fact, Motorola requested its pioneer's preferences with its original application in anticipation of the completion of the Commission's pioneer's preference proceeding. See Application of Motorola Satellite Communications, Inc. for IRIDIUM™ -- A Low Earth Orbit Satellite System, File Nos. 9-DSS-P-91(87) & CSS-91-010, at 7-8 (Dec. 3 1990).

rules ultimately adopted for the new or enhanced services are a "reasonable outgrowth of the proposal and lend themselves to the grant of a preference and a license to the pioneer."[15/] It therefore is ludicrous for Ellipsat and LQSS to suggest that the Commission should not award a tentative preference to Motorola because such a preference could lead to several rule changes and/or waivers, and possibly prejudice the outcome of the ongoing rulemaking and licensing proceedings. By definition, the award of a preference to any one applicant might prevent others from becoming Commission licensees. Clearly, the Commission contemplated such a possibility in its pioneer's preference proceedings.[16/]

Moreover, the existing RDSS rules do not prevent the Commission from granting a pioneer's preference to Motorola. Motorola has shown that its proposed system is compatible with dedicated geostationary RDSS systems operating in conformance with existing rules. The problem of sharing with CDMA systems arises because the Gang of Four have proposed systems which not only propose RDSS burst transmissions, but also continuous voice services. In the original RDSS proceeding, the Commission was able to conclude that multiple entry was possible because there was uncontroverted representations of the then-pending applicants that up to twelve dedicated RDSS geostationary systems could be

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15/ See Pioneer's Preference Order, 6 FCC Rcd. at 3494.

16/ Id. at 3492.

licensed using CDMA/spread spectrum modulation techniques.[17/]

Today, the Commission is confronted with LEO and geostationary satellite applications proposing multiple uses of the RDSS bands, including predominantly two-way voice continuous transmissions. As Motorola has demonstrated in its technical submissions in the RDSS licensing proceedings, economically viable sharing of the same spectrum by even four such LEO CDMA/spread spectrum systems is just not possible without significant loss of capacity.[18/] In light of these changed circumstances, it cannot be assumed, without some evidence,[19/] that CDMA/spread spectrum techniques can facilitate multiple entry in the RDSS bands when voice services are added. Until such evidence is in the public record, the Commission cannot rely upon its existing RDSS licensing rules to govern the processing of the current group of applicants. The addition of a primary worldwide MSS allocation in the RDSS bands and a secondary MSS (space-to-Earth) allocation in portions of the RDSS uplink band

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[17/] See RDSS Licensing Order, 104 F.C.C.2d at 658 n.27, 663 n.44.

[18/] See Motorola's Reply Comments, at 5-9, Tech. App. 1 (Jan. 31, 1992); Motorola's Consolidated Response, at 21-22 (Mar. 27, 1992). AMSC also presented technical data to support its view that not even two of the proposed CDMA/spread spectrum systems could operate compatibly in the same spectrum. See AMSC's Consolidated Opposition to Petitions to Deny, Tech. App. at 6-22 (Jan. 31, 1992).

[19/] Despite claims by the Gang of Four that they can share spectrum, not a single shred of analysis or other evidence has been supplied to the Commission to support the notion of unbridled sharing by these applicants.

further support a change in the entry rules for use of this spectrum.[20/]

In addition, contrary to the position of several of the other applicants, the Commission does not have a uniform policy favoring unlimited open entry for all domestic and international satellite services. The only consistent policy the Commission has articulated throughout the history of its satellite licensing proceedings is the expeditious grant of licenses without the delay associated with prolonged hearings.[21/] In fact, in the only completed MSS proceeding, the Commission chose to mandate a consortium of applicants by rule, rather than grant all the applications before it, because it did not want to hold a lengthy comparative hearing.[22/]

[20/] See WARC-92 Final Acts.

[21/] See Tentative Decision in GEN Docket No. 84-1234, 6 FCC Rcd. 4900, 4904-06 (1991), and cases cited therein.

[22/] See Final Decision on Remand, 7 FCC Rcd. 266 (1992). This is not to say that Motorola favors a consortium as a solution to the congestion of applications in the RDSS bands. Experience has shown that imposing a mandatory consortium on all the applicants has not worked. The best solution, in Motorola's view, is to grant promptly a pioneer's preference to the true innovator of "big" LEO technologies and new services, and weed out applicants who clearly do not have a technical proposal that meets the Commission's requirements and/or clearly do not have the financial wherewithal to implement their proposals expeditiously. The remaining applicants who are serious, have a well-designed plan, and have the necessary resources to proceed without delay then would be in a position to receive licenses.

IV. MOTOROLA IS ENTITLED TO A PIONEER'S PREFERENCE FOR THE TECHNOLOGICAL AND SERVICE INNOVATIONS ASSOCIATED WITH ITS IRIDIUM™ SYSTEM

Under any reasonable interpretation of the Commission's pioneer's preference rules, Motorola is entitled to a nationwide preference for its innovative technological and service approaches to providing ubiquitous personal mobile communications services to all areas of the world. "In determining . . . whether to grant a pioneer's preference, the Commission will consider whether the applicant has demonstrated that it (or its predecessor-in-interest) has developed an innovative proposal that leads to the establishment of a service not currently provided or a substantial enhancement of an existing service." Pioneer's Preference Reconsideration Order, 7 FCC Rcd. at 1813. The Commission meant this standard to be "as specific as possible . . . without being so inflexible as to undermine its purpose of fostering new spectrum-based technologies and services." Id. at 1809. The Commission further indicated that it would give such preferences only "for innovations of some significance." See Pioneer's Preference Order, 6 FCC Rcd. at 3500 n.8; Pioneer's Preference Reconsideration Order, 7 FCC Rcd. at 1808.

The innovations associated with the IRIDIUM™ system clearly qualify under this standard. Motorola has proposed substantial changes from that which previously existed regarding such recognized areas as:

- An added functionality provided to a broader group of customers;

- A use of the spectrum different than previously available;
- A change in the operating or technical characteristics of a service; and
- Efficiencies in spectrum use, speed or quality of information transfer.

Pioneer's Preference Order, 6 FCC Rcd. at 3494. Motorola also has demonstrated that it is the true pioneer of these developments by having "brought out the capabilities or possibilities of the technology or service or [having] brought them to a more advanced or effective state." Id. Many other entities have followed suit both in the United States and around the world. Motorola, however, undeniably has developed these technologies specifically for its IRIDIUM™ system, and has numerous patents pending as well as issued based upon such advances.[23/]

Motorola has never claimed that it deserves a pioneer's preference for the development of LEO satellites. To the contrary, LEO satellites have been in use for several decades. However, as was the case with the award of a tentative preference to VITA, Motorola is entitled to a pioneer's preference for being "the first to develop and demonstrate the utility of a small LEO system using [L-band] frequencies for civilian [voice] communications purposes." VITA Tentative Decision, 7 FCC Rcd. at 1625, 1627-28. As set forth in Motorola's pioneer's preference request and in its most recent supplement to that request,

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[23/] See Motorola's Supplement, Appendices C & D, Confidential Appendix at Tab A. To date, Motorola has received two U.S. patents for the technologies associated with the IRIDIUM™ system.

specific innovations associated with the IRIDIUM™ system include:

(1) The first to propose personal mobile voice communications for anyone, anywhere, anytime using earth terminals that are small, lightweight, pocket-sized, battery-operated, and have low-profile antennas;

(2) The coverage of the Earth with cells coupled with beam hopping/TDMA which provides for a high degree of frequency reuse;

(3) Distributed processing systems in orbit using intersatellite links. Each IRIDIUM™ satellite demodulates the signals, converts them to baseband, employs onboard processing, and routes efficiently;

(4) Soft, troublefree cell and satellite-to-satellite handoffs, and the method for predicting such handoffs;

(5) Bidirectional operation in the service bands using TDMA/FDMA modulation techniques;

(6) Multiple spot beam deployable space antenna systems;

(7) A power management system whereby overlapping cells are turned off as satellites approach the polar regions; and

(8) Devices for narrow band Doppler compensation which conserve power and can be used with handheld communications units.

Contrary to the assertions of several of the parties filing comments in this proceeding, none of these technological and service innovations can fairly be described as "relatively routine design features that most new LEO satellite licensees would be expected to accomplish."[24/] VITA Tentative Decision, 7

[24/] Nor is it fair to suggest, as AMSC has done, that the IRIDIUM™ system is sufficiently similar to the proposed commercial "little" LEO systems as to not be deserving of a pioneer's preference. None of the innovative technologies and services identified in Motorola's pioneer's preference request, as supplemented, is included in any commercial "little" LEO system.

FCC Rcd. at 1627. First, AMSC wrongly suggests that other systems, including its own, will be able to offer the voice communications services proposed by Motorola. In fact, AMSC essentially concedes in its RDSS application that its first generation system will not be able to provide MSS to handheld portable units.[25/] Nor will any of the proposed systems of the Gang of Four be able to offer truly personal mobile voice communications worldwide using terminals that are small, lightweight, pocket-sized, battery-operated, and have low-profile antennas. In this regard, Constellation mistakenly attempts to equate the technologies associated with Motorola's voice communications system with the dedicated position location system proposed by Geostar Positioning Corporation ("Geostar"). Geostar was not a continuous-wave voice/data system, and therefore, could not possibly have demonstrated the feasibility of the innovative technologies associated with the IRIDIUM™ system.

Second, the relatively simple spot beam proposals of AMSC, Ellipsat and others cannot be equated with Motorola's deployable space antenna systems which will cover the Earth completely with relatively small movable cells that transfer calls using unique beam hopping/TDMA concepts.[26/] This innovative use of a cellular frequency plan for LEO satellites provides for a high degree of frequency reuse.

[25/] See AMSC's Application, File Nos. 15-DSS-MP-91, et al. (June 3, 1991).

[26/] Constellation recognizes this "advanced level of spot beam technology" as a distinctive feature of the IRIDIUM™ system. See Constellation's Opposition to Pioneer's Preference Request, at 7 (April 8, 1992).

Third, several parties have misinterpreted the technological innovations associated with Motorola's intersatellite links. No one disputes the fact that Motorola was the first and only LEO applicant to propose the commercial use of intersatellite links to interconnect a constellation of satellites. It is the combination of distributed processing in the satellites as well as the intersatellite links which is one of the major innovations of the IRIDIUM™ system. Each IRIDIUM™ satellite will demodulate the communications signals, convert them to baseband, employ onboard processing, and route the signals efficiently using intersatellite links.

Fourth, AMSC incorrectly asserts that Motorola's innovative bidirectional operations will not improve spectrum efficiency.[27/] Simple mathematics reveals that the ability to achieve the same communications capacity in just one-half of the bandwidth required for comparable paired band systems is at least twice as efficient. Indeed, the IRIDIUM™ system will have a greater overall capacity over CONUS (4,400 channels) than AMSC's proposed operations (3,600 channels) without taking into consideration the fact that AMSC still would need an additional 10 MHz of downlink spectrum to operate its satellites. Clearly,

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[27/] AMSC concedes that "MSCI's proposal for bidirectional operation has not previously been proposed by a satellite system . . . ." See AMSC Comments, Tech. Statement at 4 (April 8, 1992). LQSS's assertion that bidirectional capabilities have been used in radar and in military systems does not detract from its innovative use by Motorola in a commercial communications system. See LQSS's Opposition to Motorola's Request for a Pioneer's Preference, at 5 (April 8, 1992).

the IRIDIUM™ system's proposed bidirectional operations is extremely spectrum efficient.[28/]

Lastly, Motorola has established through rigorous experimentation and otherwise the technical feasibility and viability of its new services and technologies. Pioneer's Preference Order, at 3496. Such experimentation was accomplished by expending substantial resources and capital in the development of these proposed innovations. In its supplement, Motorola presented the preliminary results of several experiments which it has conducted to date concerning many key components of its system design.[29/] Irrespective of these experiments, there

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[28/] Both LQSS and Ellipsat appear to argue that spectrum sharing and multiple entry are prerequisites for obtaining a pioneer's preference in this proceeding. See LQSS's Opposition to Motorola's Request for a Pioneer's Preference, at 4 (April 8, 1992); Opposition of Ellipsat Corp. to Pioneer's Preference Request of Motorola, at 14-15 (April 8, 1992). As previously indicated, the IRIDIUM™ system can share the RDSS bands with one or more other systems so long as those systems operate in the remaining two-thirds of the RDSS spectrum. Motorola has also demonstrated that such a band splitting approach would be far more spectrum efficient than LQSS's and Ellipsat's CDMA/spread spectrum concepts. See Motorola's Reply Comments, at 4-14. In any event, the Commission has not established any such spectrum sharing or multiple entry requirements in its pioneer's preference rules or decisions. The Commission, at most, has indicated that it would give "careful consideration" to technologies that yield positive spectrum sharing results. See Pioneer's Preference Order, 6 FCC Rcd. at 3494. Similarly, it is ludicrous for LQSS and Ellipsat to argue against a preference to Motorola on the basis of quality of information transfer and reduced costs to the public for a satellite service -- personal voice communications to handheld units -- that has never before been proposed.

[29/] See Motorola's Supplement, at Confidential Appendix, Tab B. Motorola has requested confidential treatment of this material due to the company proprietary nature of the experimental findings contained therein. The Commission has the discretion to rely upon such confidential information in awarding Motorola a pioneer's preference in this proceeding. See FCC v. Schreiber,

(continued...)

should be no serious question as to the technical feasibility of the IRIDIUM™ system design for purposes of awarding Motorola a pioneer's preference.[30/]

V. NONE OF THE OTHER RDSS APPLICANTS DESERVES A PIONEER'S PREFERENCE IN THIS PROCEEDING

Other than Motorola, only LQSS and Ellipsat seriously promote their respective requests for a pioneer's preference.[31/] For the reasons stated in Motorola's Comments in this proceeding, neither applicant is deserving of such a preference. Specifically, Ellipsat's reliance upon the timing of the filing of its application has no bearing on the outcome of this proceeding. As the Commission has already observed, its focus is

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[29/] (...continued)
381 U.S. 279 (1965). See also 5 U.S.C. § 552(b)(4); 47 U.S.C. § 154(j); 47 C.F.R. § 0.457(d).

[30/] Constellation and Ellipsat also generally allege that Motorola has not explained how the IRIDIUM™ system will be able to operate in a manner consistent with the results reached at WARC-92. See Constellation's Opposition, at 9; Opposition of Ellipsat Corp. to Pioneer's Preference Request of Motorola, at 12. As both applicants are well aware, the allocations at WARC-92 for the RDSS bands were consistent with the United States positions which were supported and promoted by Motorola, both prior to, and at the Conference. Motorola's submissions in the WARC-92 and RDSS licensing proceedings thoroughly demonstrate that the IRIDIUM™ system will be able to operate within the constraints established at WARC-92 for the portion of the RDSS uplink band it proposes to use. See, e.g., Supplemental Information to IRIDIUM™ System Application, Appendix B (Feb. 22, 1991).

[31/] Constellation does not even mention its pioneer's preference request, and Ellipsat and TRW only half-heartedly promote their respective requests. See TRW's Opposition to Pioneer's Preference Request of Motorola Satellite Communications, Inc., at 8 (April 8, 1992); TRW's Comments, at 4 n. 4 (April 8, 1992); Ellipsat's Opposition, at 15-19.

on the developer of an innovation, and not the applicant who might have been the first to file its request. See Pioneer's Preference Order, 6 FCC Rcd. at 3500 n.10. Motorola clearly is the pioneer of commercial "big" LEO satellites above 1 GHz.[32/] Ellipsat also has conceded that its system design "uses existing state-of-the-art technology."[33/] Thus, Ellipsat cannot claim credit for any technological innovations associated with the use of elliptical orbits, CDMA/spread spectrum modulation techniques, or interconnection to terrestrial systems.[34/]

Similarly, there is nothing new or innovative about LQSS's proposed system design. Its heavy reliance upon CDMA/spread spectrum modulation is misplaced. Such modulation techniques for satellite systems have been available for a number of years, and the current RDSS rules, which were adopted in 1985, envision CDMA/spread spectrum for dedicated RDSS systems. In denying a preference request to one of the "little" LEO applicants, the Commission rejected, as not being sufficiently innovative, a similar invocation of spread spectrum technology.[35/] In any event, none of the LEO applicants has even attempted to demonstrate the technical feasibility of CDMA/spread spectrum techniques for accommodating multiple

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[32/] See Motorola's Supplement, at 4-6, 8-9.

[33/] See Request for Pioneer's Preference of Ellipsat, File No. PP-30, at 2 (July 29, 1991).

[34/] See Motorola's Comments, at 18-20 (April 8, 1992).

[35/] See VITA Tentative Decision, 7 FCC Rcd. at 1628. In any event, Ellipsat filed its CDMA proposal over six months prior to the filing of LQSS's application.

continuous wave satellite systems, whether homogeneous or non-homogeneous.

Moreover, none of the Gang of Four has demonstrated the technical feasibility of its respective system. No experiments have been reported by any of these applicants to the Commission. Ellipsat's bare assertion that four unnamed aerospace companies have corroborated the feasibility of its proposed system lacks credibility, especially in light of the many technical deficiencies noted by Motorola and others in the RDSS licensing proceeding. The Commission also must question the technical feasibility of LQSS's proposed system design due to its apparent failure adequately to take into account the adverse effects of intersatellite interference and its "keep alive" functions, as well as its inability, due to the design of its system, to provide continuous voice to the entire United States.[36/]

[36/] See Motorola's Reply Comments (Jan. 31, 1992); Motorola's Consolidated Response (Mar. 27, 1992).

VI. CONCLUSION

For the foregoing reasons as well as the entire record in this proceeding, the Commission should grant Motorola's request for a pioneer's preference and deny the requests of all of the other parties to this proceeding.

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